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ABSTRACT

New technologies offer educators a lower cost, easier to access opportunity to use distance learning. The Internet, which has had a wide impact on education, has only recently become widely available and is much easier to navigate than in past years. Educational benefits for students using the Internet include learning materials posted on Internet pages, learning to work cooperatively, and learning to write correctly when creating web pages. Videoconferencing is another new technology. Within the last year, new technologies have made it possible videoconference over the Internet for a reasonable price. Until recently, only those in professional laboratories could turn photographs, sounds, and video images into digital files that could be manipulated by computer. Digital cameras that once cost thousands of dollars now cost hundreds. They are as easy to use as standard cameras. Many schools use digital cameras to create web pages. Digital images can be created by scanners at reasonable costs. As prices drop, schools must consider whether it is worth the expense to use technology, determining how and why the technology is important to them and whether the time it takes to integrate it into the curriculum is justified by the educational benefits. Use of the new technologies can naturally foster the kind of collaborative learning that is harder to achieve in other settings. (SM)

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# Low Cost Distance Learning

## Strategies for Educators

by

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**Low-Cost Distance Learning Strategies for Educators**

Distance learning has received considerable attention in both the popular and scholarly press for many years. As early as 1988, Educational Technology featured an article which showed how satellite links, VCRs and telephone lines could enrich educational opportunities especially in areas where population is spread out geographially. In fact, experience has shown that most of those early attempts at distance learning were failures. They were failures because the technology did not really work, because it was too expensive, or because teachers did not have access to the technology and the training it required.

New technologies have given educators a "second chance" when it comes to distance learning. These new technologies are widely available and extremely affordable. Furthermore, training for teachers is becoming easier to provide as teachers become more technology literate. Will these new technologies make distance learning a reality when the old technologies fail? What impact will these new technologies have on education at the K-12 and college levels?

## What are the New Technologies?

### The Internet

While not new, the Internet is certainly the technology that has had the widest impact on education. Although the Internet has existed for decades, only now has it become widely available. The introduction of the World Wide Web and browsers such as *Netscape* and *Microsoft Internet Explorer* have made the Internet easy to navigate. School personnel routinely search for information of instructional and administrative value. And, the educational benefit is not limited to having students or parents "learn" material that is posted on Internet pages. In the North Rockland Central School District, we have found that the greatest value comes from what students learn when they create Internet pages. They obviously need to learn about the content of the material they will post, but they also need to learn to write correctly since their work will be "read" by potententially millions of people. Perhaps most important, students must learn to work as a team since the creations of a school's web page is rarely an individual project. In fact, in North Rockland, such page design teams are in place in all of our schools. They have achieved varying levels of progress, but all of those involved agree that the process of involving faculty, administrators, parents and students is a positive one.

### Videoconferencing

Videoconferencing is another new technology whose use is spreading quickly. Only a year or so ago, setups for videoconferencing cost tens of thousands of dollars. Within the last year, new technologies make it possible to do videoconferencing over the Internet with setups costing less than a few hundred dollars. In the North Rockland Central Schools, we are using Connectix cameras with CU-See-Me software. Those setups will transmit

both voice and video that is of acceptable quality. While one would not use such a setup to actually teach a full class, we have found the technology useful for doing group-to-group work among students in different buildings and school districts. We have had successful experiences linking high school students up with university research scientists, and connecting modern language students to native speakers in various parts of the world. For example, students in our ninth grade science classes regularly hold on-line videoconferencing sessions with university research scientists at Wheeling College in Virginia. And, one of the highlights of our videoconferencing experience occurred when the person in Paris to whom we were speaking held her Connectix camera out the window so we could see and hear a Paris street. Our future plans call for using videoconferencing technology to ease the transition from elementary to middle school and from middle school to high school.

Digital Technology

Until recently, only those in professional labs were able to turn photographs, sounds and video images into digital files that could be manipulated by computer. Digital cameras that once cost thousands of dollars now cost hundreds. These cameras are as easy to use as the standard household camera, but the image can be transferred immediately to a computer for manipulation. Through combinations of grants and local funding we have made digital cameras available to all of our schools. Each of them costs in the range of $300. We are successfully using a digital camera by third graders at a summer program being held at West Haverstraw Elementary School. At our high and middle schools, digital cameras are regularly used by those creating web pages.

Digital images can also be created by scanners at reasonable costs. Until recently, full page scanners cost $1,000 or more. Now they are in the range of $350 for machines that produce digital images of good to excellent quality. One technological highlight of our year was a production by a third grade class on the weather. The multimedia presentation, which the students did using *Powerpoint* included scanned images of drawings they did on floods, droughts, hurricanes and tornadoes. We plan for more use of digital technology - in the form of both cameras and scanners - as we integrate keyboarding and computer skills more fully into our language arts curriculum.

It is now possible to digitize what we hear, as well as what we see. Through the sound capabilities of Windows (and similar capabilities on the Macintosh), one simply plugs an inexpensive microphone into the computer to record information "live" or from a pre-recorded source. We find that students are extremely enthusiastic about choosing appropriate musical clips to illustrate their multimedia presentations. Those previously reluctant to make such presentations are anxious to bring their understanding of music to bear on their presentators.

**Why should schools do this?**

Even as the cost of these technologies drops, schools must still consider whether it is worth the expense to become involved in them. The issues that schools considers when investing in videoconferencing are similar to the issues that they consider when investing in multimedia. As Dr. Sylvia Charp said, "... how and why we use this exciting new media

are still most important (6). And, more important, is the time it takes to integrate these technologies into the curriculum justified by the educational benefits? Our experience suggests that the effort is worth it. First, students are learning cutting-edge technology skills, skills that will serve them well in the future. Second, the access to the technology generates enthusiasm about school-related projects that did not exist in the non-technological environment. Finally, and most importantly, students are truly able to integrate the technology into the curriculum as they prepare projects and complete assignments. Of course, they would never use the phrase, "Integrate technology into the curriculum," but they begin to say things like I want to use a digital image from *Encarta* for my class presentation on the presidential election. And, maybe I'll also digitize a short piece of one of Clinton's speeches that I'll record from the news." When the students do these things, they often do them as part of the kind of collaborative environments that we try to foster in all academic areas. We have truly found that the use of these new technologies naturally foster the kind of collaborative learning that we must work hard to achieve in other settings.

*The authors wish to thank the teachers of the North Rockland Central Schools, especially Sue Tomko, for their enthusiasm in using technology in their classrooms. That enthusiasm was the impetus for this article.*

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Products Mentioned in this article:

Connectix, 2655 Campus Drive

San Mateo, CA 800-950-5880

email quickcam@connectix com

CU-See-Me, 40 Simon Street, Nashua, NH 03060

603-594-2804 webhttp 11www cu seeme com